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COPY 1 OF 2

24 July 1959

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MEMORANDUM FOR: [redacted], DPD/DD/P

SUBJECT : New Techniques

The following are presented for your next new techniques meeting:

Joint Staff Officer

Semiconductor Solid Circuits

1. Texas Instruments, Inc., Dallas, Texas, has developed techniques for providing electronics circuity composed completely of semiconductor material. By diffusion, metalic evaporation, alloying and chemical forming, a single semiconductor wafer is made to perform the function of a complete circuit. This technique is expected to provide subminiaturization of many circuits. TI claims that they have been able to provide component density of 30 million to the cubic foot as compared to 50 to 75 thousand with standard electronic components. Research is continuing and sample quantities may be available during 1959. + The ESO expect to obtain additional information through several personal contacts at TI.

25 YEAR RE-REVIEW

Frequency Sensitive Attenuators

2. Stanford University has called attention to RADITE No. 75, a material whose attenuation is proportional to frequency of the electromagnetic signal applied. Information available indicates at S Band an accuracy of plus or minus 15 mc/s can be obtained in using this material as a frequency measuring device. The material will satisfactorily measure frequency over a 15 db range in power By utilizing instantaneous automatic gain circuits (IAGC), Stanford has been able to utilize the material over a 50 db range in power. Details on the producer of the material are not known but will be obtained and provided ~~possibly at the next meeting~~. by the ESO.

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